User Manual

LEATT DBX PRO

Note: The products depicted in this user manual may vary to some degree in product graphics or color.

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⚠ WARNING

Bicycling, cycling and racing can be dangerous. Participation in these activities can result in severe brain, head and neck injuries which may result in paralysis or death. Although the Leatt-Brace® is designed to help reduce the risk of such injuries, there is no guarantee that any injury will be prevented by the use of this or any other safety equipment. Read all instructions prior to use. Before putting on your Leatt-Brace® each time, please review and comply with the following cautions and instructions below.

- The Leatt-Brace® cannot protect against all possible impacts and/or injuries. Although the Leatt-Brace® is designed to help reduce the risk of such injuries, there is no guarantee that any injury will be prevented by the use of this equipment. Perform any bicycling sport activity with caution and use/wear appropriate safety equipment.
- For maximum performance, the Leatt-Brace® must be properly fitted and attached according to the instructions in the user manual. It is recommended that this product be used only in conjunction with a helmet with a permanent fixed chin part (e.g full-face helmet, motorcross / DH helmet, DO NOT USE WITH A JET HELMET). Use at your own risk.
- For maximum performance, the Leatt-Brace® must be inspected prior to each use. **STOP** using the Leatt-Brace® if any components show signs of damage or are worn, cracked, and/or deformed, or if the inside padding is deteriorated. **Leatt® Corporation recommends that the Leatt-Brace® be replaced every two (2) years under normal racing conditions.**
- Should you experience a collision or if the Leatt-Brace® or any component shows any signs of damage, cracking, deformity and/or the inside padding is deteriorating, return the Leatt-Brace® to the seller for inspection or destroy and replace the Leatt-Brace®.
- Common substances applied to this brace (solvent, cleaners, hair tonics, etc.) can cause damage that may be invisible to the user and compromise the effectiveness/safety of the Leatt-Brace®. Wash only with gentle soap or detergent in cold water, rinse in cold water and dry with a soft cloth.
- Do not drill holes, paint, cut, heat, bend, or make any other modifications to the Leatt-Brace® unless authorized in advance by the Seller. Doing so may compromise the effectiveness/safety of the Leatt-Brace®.
- The brace has been tested using various static and dynamic tests, but has not been tested on riders under race conditions for instrumented impact assessment; this product is of a new design.
- The brace has been tested on a wide range of users and bicycle types and should fit you and your bicycle, if not, minor adjustments may be required for proper fit. Failure to properly adjust the brace before use may compromise rider safety and brace effectiveness.
- Always attach your helmet correctly according to seller's guidelines. Ensure that all of your safety equipment has not passed beyond its recommended life span. Travel/race with safety as your primary principle.

If you have any questions regarding this product or its proper use, please contact Leatt® Corporation at:

Leatt® Corporation RSA
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WARRANTY DISCLAIMER

YOUR LEATT-BRACE® IS WARRANTED TO BE FREE OF DEFECTS IN MATERIALS AND MANUFACTURING FOR ONE YEAR FROM THE DATE OF PURCHASE. CRASH DAMAGE, NEGLECT, ABUSE OR ALTERATION OF YOUR BRACE IS NOT COVERED UNDER THIS WARRANTY. SEVERAL PARTS OF THE LEATT-BRACE ARE DESIGNED TO FRACTURE AS THEY HELP PROTECT YOU IN CERTAIN RIDING SCENARIOS. THESE PARTS ARE REPLACEABLE AND OFFERED FOR SALE. IF YOU BELIEVE YOU HAVE A WARRANTY CLAIM, TAKE THE BRACE BACK TO THE RETAILER YOU BOUGHT IT FROM. TO ACTIVATE YOUR WARRANTY PLEASE GO TO THE WWW.LEATT.COM AND FILL OUT THE WARRANTY REGISTRATION FORM OR EMAIL WARRANTY@LEATT.COM.

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Leatt-Brace® DBX Pro

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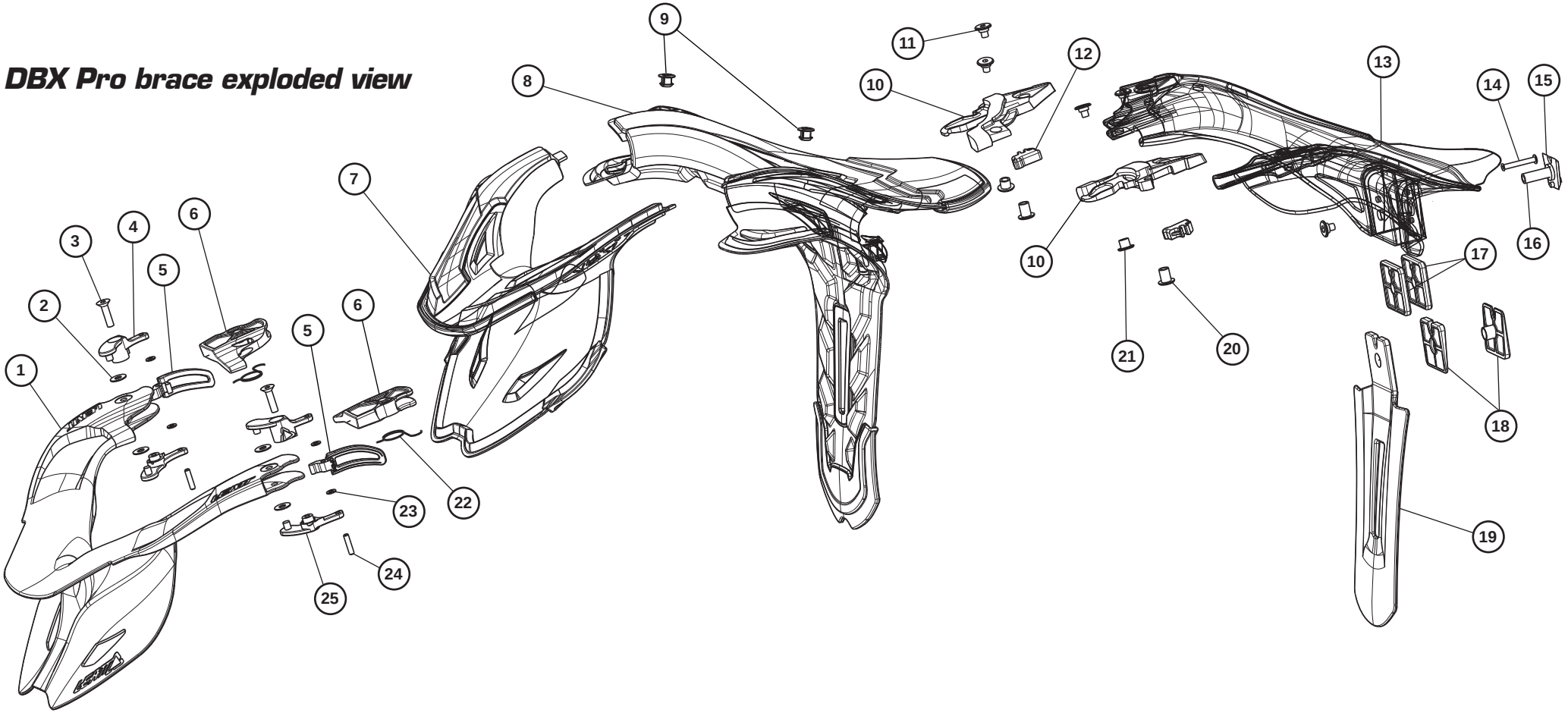
DBX Pro brace exploded view



Parts/Components List	QTY		QTY
1 - Pro Front Component	1	14 - Rivet 2,9 x 21mm	1
2 - Nylon Washer M4	4	15 - Shim Bolt Cap	1
3 - CSNK M4 X 16mm custom	2	16 - M4-Strut Captive Nut	1
4 - Hinge Top	2	17 - Shims	2
5 - Hinge Lever	2	18 - Rotatable Wedges	2
6 - Front Pin Housing	2	19 - Pro Thoracic	1
7 - Pro Front Padding	1	20 - M4 X 9mm Shoulder Nut	2
8 - Pro Back Paadding	1	21 - M4 X 6mm Shoulder Nut	2
9 - Tri Clip	2	22 - Front Spring	2
10 - Pro 10mm Pin	2	23 - Nylon Washer M3	4
11 - M4 X 7mm Shoulder Bolt	4	24 - Dowl Pin	2
12 - Pin Clip	2	25 - Hinge Bottom	2
13 - Pro Back Composite	1		

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User manual introduction

Welcome to the world of Leatt® and thank you for choosing our product. The Leatt-Brace® you have purchased is based on years of academic research and extensive evaluation of the mechanisms of head and neck injuries, together with testing in test facilities and via simulation software. The brace has been tested using various static and dynamic tests. The Leatt-Brace® is part of the protective equipment ensemble available for use by participants in cycle and motor sports activities.

The design rationale behind the Leatt-Brace® is to help bring the head to a controlled stop during an accident/fall. This is achieved by providing a padded rigid structure that helps act as an alternative load path for neck forces. Helmet impacts otherwise transmitted from the helmet to skull and then to the neck are re-directed from the helmet to the brace and then to other body structures. The design of the Leatt-Brace® helps prevent the helmet/head from projecting over the brace and therefore helps prevent a fulcrum action which has been documented in literature pertaining to the use of collar devices. The Leatt-Brace® may be worn with most types of bicycling body armor and chest protectors. Over long distances, the Leatt-Brace® will also offer some relief from neck fatigue.

The Leatt® DBX neck brace system helps prevent the following extreme movements:

- head, forward – HyperFlexion
- head, rearward – HyperExtension
- head, sideways – Lateral HyperFlexion
- head/helmet, rearward on the neck – Posterior HyperTranslation
- coupled axial loading – Helps prevent axial loading only when the axial forces act in combination with other mechanisms.

The Leatt-Brace® has also been tested against the manufacturer's specifications and EC Type* and it is CE marked to denote compliance with the EU Personal Protective Equipment Directive 89/686/EEC.

Please e-mail any comments you might have to info@leatt.com.

The Leatt® DBX Pro Brace (*Figure 1*) has been designed to be set up in stages to suit your requirements. Please follow the fitment process carefully. It should take you about 20 minutes to complete.

*Examination certification has been issued by SGS United Kingdom, Ellesmere Port CH65 3EN, England UK; Notified Body No. 0120.

Figure 1

Please note: The product shown may vary in colour. Brace components are depicted in contrasting colours to indicate individual identification.

Test specifications

Test specifications including the following have been used in the evaluation of this product:

- Eurotype Hybrid III instrumented sled tests (Land Mobility Technologies document No.P/2/00/00431, May 2004)
- BMW Pendulum Testing and Validation Model using Lifemod™ – BMW Test Facilities, Munich, Germany (2006)
- Innovations at BMW Motorrad in the development of equipment for motorcycle riders to reduce the risk of injuries based on the example of the Neck Brace System (proceedings of the 6th International Safety - Environment - Future Conference; Cologne, Germany, 9 – 10 October 2006)
- Side Impact Simulations Using a Validated Pendulum Test Methodology (Leatt® Corporation Biomechanics Division)
- Leatt® Manufacturing Test Specification Issue 2
- EN 340 – "Protective clothing – General Requirements"

The first five test specifications listed assess the ability of the Leatt-Brace® to help reduce forwards and backwards movement of the wearer's head and neck in a collision, or when impacting the road surface. "Leatt® Manufacturing Test Specification Issue 2" includes evaluations of the resistance of the Leatt-Brace® fastenings to opening in the event of an impact. The chemical content of the materials and components used in the construction of the Leatt-Brace® has been assessed in accordance with the requirements of EN 340.

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Leatt-Brace® sizing chart

The size of the brace should be correct for your body shape and allows for adjustability to ensure correct fitment and comfort, no matter what your application is.

When correctly-adjusted and worn with your helmet, the Leatt-Brace® should allow the full range of normal head and neck movements (i.e. looking up, looking down and looking side-to-side, such as when performing an over-the-shoulder check); the Leatt-Brace® and the helmet should only come into contact with each other as the full range of normal head movement is reached.

If any resistance or discomfort is experienced when attempting to complete the full range of head and neck movements, or if the brace does not make contact with the helmet when the full range of movement is reached, further adjustment, or an alternative size of Leatt-Brace® may be required.

In extreme circumstances, it may be necessary to purchase an alternative model of helmet in order to achieve the required level of compatibility and safety.

Please ask the retailer or contact Leatt® if you require further advice on sizing, adjustment or fitting.

Please use the sizing chart below to ensure that you have purchased the correct size Leatt-Brace®. The sizing chart is based on your height and chest circumference right below the arms therefore make sure that you take the correct measurements before utilizing the chart on next page.

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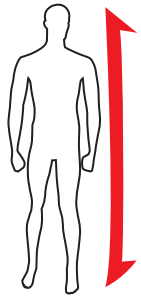
Sizing Chart

Size Range
Small: 4 - 16 years old (thin build) to fit wearer height: 97.5 – 165 cm
Medium: 16 years + (average to bigger build) to fit wearer height: 165 cm +

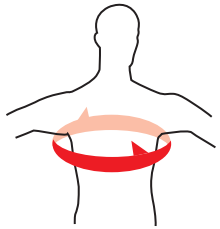
Height ft	Height cm	Chest circumference 21.6 - 33.5 (55 - 85)	33.9 - 35 (86 - 89)	35.4 - 37 (90 - 94)	37.4 - 43.3+ (95 - 110+)
3'6" - 4'7"	106 - 139	sml			
4'7" - 5'1"	140 - 155	sml	sml/med		
5'1" - 5'4"	156 - 163	sml	sml/med	med	
5'4" - 5'5"	164 - 166	sml	sml/med	med	med
5'6" - 5'7"	167 - 169	sml	sml/med	med	med
5'7" - 5'8"	170 - 172	sml	sml/med	sml/med	med
5'8" - 5'9"	173 - 175	sml	sml	sml/med	med
5'9" - 5'10"	176 - 178	sml	sml	sml/med	med
5'10" - 5'11"	179 - 181	sml	sml	sml/med	med
5'11" - 6'	181 - 183		sml	sml/med	med
6' - 6'1"	183 - 185			sml/med	med
6'1" - 6'3"+	185 - 190+				med

Inches / cm

* sm/md refers to either a medium size brace on the smallest setting or a small size brace on the largest setting



* Height



* Chest circumference right below the arms

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Leatt-Brace® fitment - Step 1

The brace has been fitted on a wide range of users and bicycle types and should fit you. If not, minor adjustments may be required for proper fit. Failure to properly adjust the brace before use may compromise rider safety and brace effectiveness. When correctly-adjusted and worn with the user's safety helmet, the Leatt-Brace® should allow the full range of normal head and neck movements (i.e. looking up, looking down and looking side-to-side, such as when performing an over-the-shoulder check); the Leatt-Brace® and the helmet only coming into contact with each other as the full range of normal movement is reached.

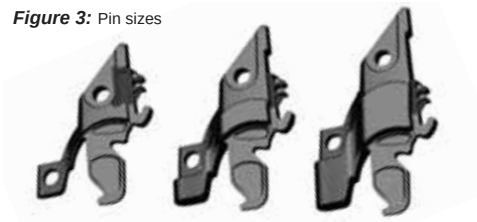
Your DBX Pro brace is supplied with three pairs of different sized Pins for adjustment. The Medium Pin is fitted as standard. Start by fitting your brace without the thoracic assembly attached on your shoulders and chest as shown below in *Figure 2.*

Figure 2

Ensure comfortable fit to shoulders
Brace fitted without the thoracic assembly on the back assembly
Thoracic padding
Change Pin size to short or long according to fit
Ensure comfortable fit to chest

Adjustment with Pins
If the brace is too loose around your neck with the fitted Medium Pin and does not sit comfortably on your shoulders and chest, fit the Short Pin (see *Figure 3*). If the brace is too short and therefore too tight, simply fit the Long Pin.

Figure 3: Pin sizes



Fitting the Pins
Unscrew the 2 Buttonhead Cap Screws (see *Figure 4a*) with the supplied Allen key. Slide the Pin out once the Cap Screws are removed (see *Figure 4b*) and replace by sliding the desired Pin back in the same way. Now screw in the 2 Buttonhead Cap Screws with its washers in place to secure the newly fitted Pin.

Figure 4a:

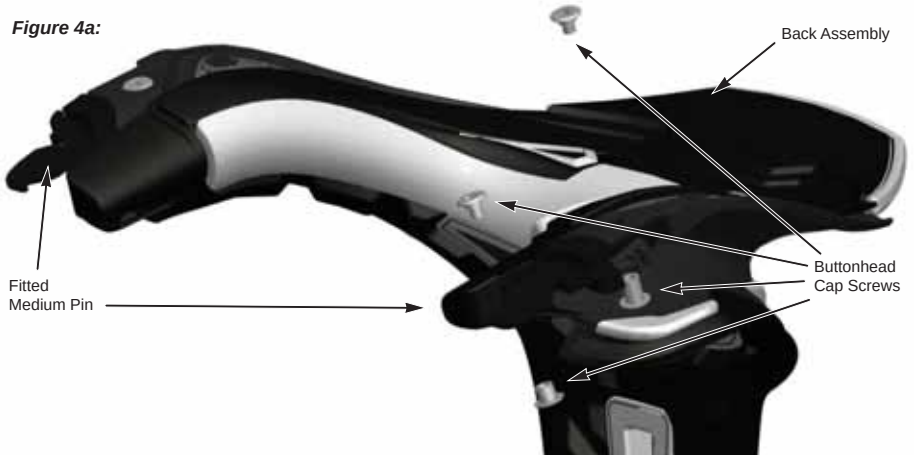
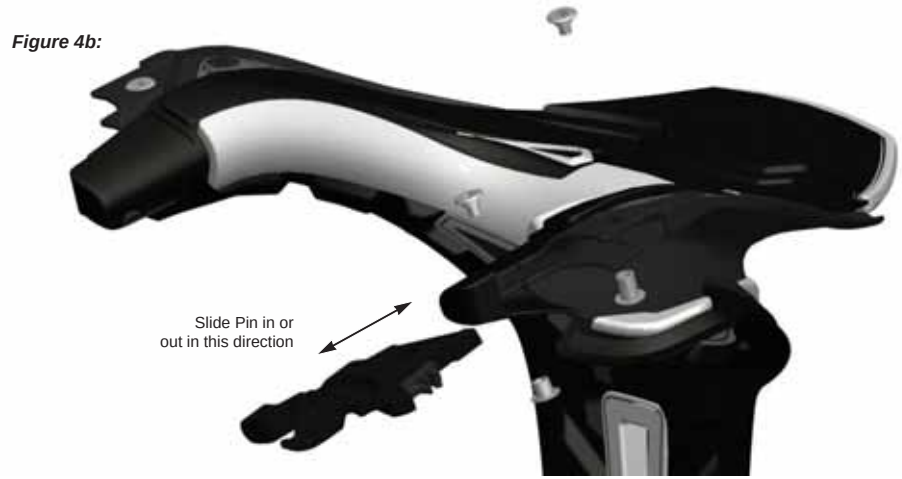


Figure 4b:



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Step 2 - Strut and thoracic assembly

The Strut assembly has three parts, the thoracic strut *(Figure 6)* and two rotatable wedges *(Figure 6a)*. Depending on the configuration of the the wedges and the thoracic strut, you can vary the fitment angles to 5°, 10° or 15°, see *(Figure 6b)*

We recommend that you start with the strut angled at 10 degrees. This is the most commonly used strut angle for average sized riders.

Figure 6

Figure 6a

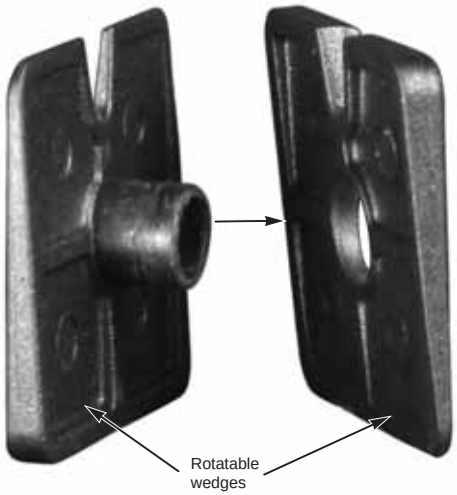
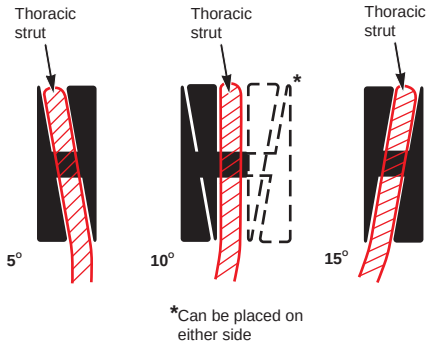


Figure 6b



Step 2 - Strut assembly

(Continued)

Insert the strut assembly (*Figure 6 & 6a*) into the back assembly of the brace (*Figure 7a*), starting with one Shim on either side (*Figure 7b*) of the strut assembly. The strut assembly and Shim will always be contained within the brace so that you can adjust the brace at any time. There is no need to fit the Locking Cap Screw at this time.

Now refit the brace. If the brace is pulled slightly backward (too tight), place the two Shims (*Figure 7b*) in front of the strut assembly (towards the front portion of the brace), if the brace has become too loose, place the two Shims behind the strut assembly (towards the back portion of the brace). If the lowermost portion of the strut assembly is located away from your back, use another strut assembly combination. (*refer to Figure 6b*). You may now secure the Locking Cap Screw (see *Figure 7a*) that fastens the strut assembly to the back assembly.

Figure 7a

Figure 7b

Opening and closing the Leatt-Brace®

The Leatt-Brace® can be opened from the left or right (*Figure 8a*), or the front assembly can be completely removed (*Figure 8b*).

Figure 8a

Figure 8b

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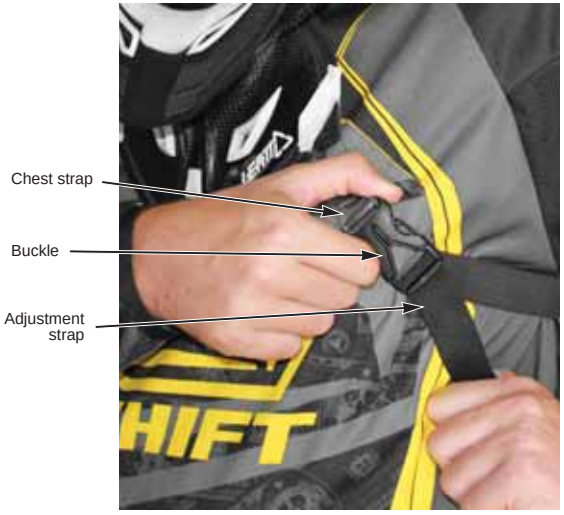
Fitting the DBX Pro chest strap

Partially remove rear padding from brace *(Figure 9a)*. Insert tip of chest strap through the insertion point in padding. Attach strap to Velcro on the inside of padding. Re-attach padding to brace. Partially remove front padding from brace *(Figure 9b)*. Insert both tips of chest strap through the insertion points on the sides of the front padding. Attach strap ends to the velcro inside of the padding. Re-attach padding to front of brace. Adjust buckles on both sides to fit comfortably on body *(Figure 9c)*.

Figure 9a

Figure 9b

Figure 9c



Fitting the DBX Pro brace with a roost guard

When wearing a roost guard, the lower portion of the front assembly of the brace should be placed inside the roost guard and the upper portion of the front assembly should be outside the roost guard *(Figure 10a).* The same applies to the back upper and lower portions of the brace *(Figure 10b)*.

If your roost guard is a smaller size, you may have to widen the head opening of the roost guard. Most roost guards allow for this adjustment. In the case of very small children, allow the front lower portion to rest on the outside of the roost guard. Some junior riders choose to remove the hard outer portion of the shoulder padding from their roost guards for comfort.

Figure 10a & 10b: *Your DBX Pro Brace may be worn under or on top of Roost Guard as long as the thoracic assembly is under the back protector.*

Figure10a

Figure10b

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Fitting the DBX Pro brace with a Body Jacket

The DBX Pro Brace can be worn very comfortably and unobtrusively with a Body Jacket. When wearing a Body Jacket with the brace, ensure that the brace rests comfortably over the front of the jacket.
(*see Figure 11a*).

At the back of the jacket the thoracic assembly should be worn on the inside (*see Figure 11b*).

Refer to Step 1 to adjust the fit and comfort of your brace on the chest and back.

Figure 11a

Figure 11b

Figure 11a & 11b: *Your DBX Pro Brace may be worn on top of the front of the Body jacket as long as the thoracic assembly is under the back protector.*

Looking after your Leatt-Brace®

You may want to wash your Leatt-Brace® after hard riding. The brace and integrated padding should only be washed with a gentle soap or detergent in cold water, rinsed in cold water and dried with a cloth only. Common substances applied to this brace (solvent, cleaners, hair tonics, etc.) can cause damage that may be invisible to the user and compromise the effectiveness/safety of the Leatt-Brace®. Always refer to the material content label on the Leatt-Brace®. None of the materials used are known to contain anything that might cause an allergic reaction or be dangerous to your health.

When storing your Leatt-Brace®, place it on a clean, dry surface and store in a dry, well-ventilated environment away from direct sunlight and extremes of temperature. Do not place heavy objects on top of the Leatt-Brace®.

For maximum performance the Leatt-Brace® must be inspected prior to each use. Stop using the Leatt-Brace® if any of its components, including but not limited to, the Front Component, Hinge Lever Assembly, Pins, Strut, Nylon Washers and/or the Back Component (See Parts/Components List on page 3) are worn, cracked and/or deformed, or if the inside padding is deteriorated.

We wish you many safe hours of enjoyable racing and riding with your Leatt-Brace®. Please contact us with any questions or comments at info@leatt-brace.com. We recommend that you replace your Leatt-Brace® every two years of normal racing conditions and replace any components that are damaged in a serious accident.

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DBX Pro

INDEMNITY

As a condition of purchase/receipt of the Leatt-Brace®, the user has fully read and understood the User Manual and understands that although the brace is desgined to help reduce brain, head and neck injuries when worn in conjunction with a full-faced helmet, there is no guarantee that any injury will be prevented by the use of the brace. Each brace must be set up for the individual user and be of the correct size and fit.

As a condition of purchase and/or receipt of the Leatt-Brace®, the user has read and familiarized himself/herself with the technical aspects, research and test results relating to the Leatt-Brace® provided at Leatt® Corporation's website (www.leatt-brace.com) and understands the nature of the brace and its intended use and correct fitment.

As a condition of purchse and/or receipt of the Leatt-Brace®, the user understands and recognizes that the brace has not been tested on riders in race conditions for instrumented impact assessment and that this is a new design.

Should you not wish to accept the terms of this Indemnity, please return the Leatt-Brace®.

Always attach your helmet correctly according to manufacturer's guidelines, ensure all your safety equipment has not passed its recommended lifespan and travel/race with safety as an important principal.

As a condition of purchase and/or receipt of the Leatt-Brace®, the user waives any claims against Leatt® Corporation, the inventor, manufacturer, any subcontractor, agent or Global Distributor. Leatt® Corporation, the inventor, manufacturer, any subcontractor, agent of Global Distributor will under no circumstances be liable to any person for any damages, direct, indirect, bodily or otherwise including injury or death, that may be sustained by any person as a result of the use of the Leatt-Brace®, any alleged defect therein or its alleged failure to afford the protection offered by it or for any consequential loss of profits or damages suffered by any person, however such loss or damage may arise or for any other reason of from any other circumstances of whatsoever nature.

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WARRANTY DISCLAIMER

NO EXPRESS WARRANTIES WITH RESPECT TO THE BRACE OTHER THAN THOSE EXPRESSLY SET FORTH HEREIN HAVE BEEN PROVIDED.

LEATT® CORPORATION, UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE GOODS EXCEPT AS OTHERWISE PROVIDED HEREIN. LEATT CORPORATION, TAKES NO RESPONSIBILITY THAT THE GOODS WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH YOU MAY BE BUYING THE GOODS, EXCEPT AS OTHERWISE PROVIDED HEREIN. ALL IMPLIED WARRANTIES ARE HEREBY DISCLAIMED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.

In the event of a crash

1. Should your Leatt-Brace® be damaged as result of a serious accident, no Warranty Claim is possible.
2. The Leatt-Brace® is designed to become damaged as it helps protect you, i.e. thoracic strut snaps off.
3. The Leatt® Corporation would like to hear from you if you have been involved in a crash event. The feedback is used to advance the understanding of crash dynamics in the Leatt® Lab and assist in improving our products.
4. In event of a crash, if you have supporting footage, photos or medical information, please download the Injury Assessment Form from the address below, gather all the supporting information and submit it, to the address below.
5. After evaluation by the Leatt® Lab and subject to the Leatt® Lab discretion incentives may be offered for fully completed Injury Assessment forms;

Download the Crash-Event form, from www.leatt.com/crash-events
and email to crash-events@leatt.com

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Notes

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A percentage of your Leatt-Brace® purchase price is donated to the Wings For Life spinal cord research foundation. www.wingsforlife.com

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